

**Loughran 9-3-2**

**CLAIMS:**

1. A digital communication system for processing at least one of cell and packet information, the digital communication system comprising:

5

at least one node interconnected through a fabric, the at least one node comprising:

10

at least one of a plurality of network processing devices for receiving at least one of the cell and the packet information, for determining a destination within the node for the cell and the packet information, and for at least one of routing and forwarding the cell and the packet information to the destination;

15

a shared bus structure for coupling each of the network processing devices with each other; and

20

an interface for coupling at least one of the network processing devices with the fabric to support communication between nodes.

2. The digital communication system of Claim 1, wherein the destination is determined in response to at least one of stored routing rules and characteristics of the cell and the packet information.

25

3. The digital communication system of Claim 2, wherein the at least one of a plurality of network processing devices employ dynamically updated routing rules.

**Loughran 9-3-2**

4. The digital communication system of Claim 1, wherein the at least one of  
a plurality of network processing devices performs the at least one of routing  
5 and forwarding on both the cell and the packet information simultaneously.

5. The digital communication system of Claim 1, wherein the at least one of  
a plurality of network processing devices directly delivers the at least one of  
10 routing and forwarding the cell and the packet information into a memory of  
the destination.

6. The digital communication system of Claim 1, wherein the at least one  
15 network processing device supports peer-to-peer routing.

7. The digital communication system of Claim 1, wherein the interface  
provides the cell and the packet information to the at least one network  
20 processing device.

8. The digital communication system of Claim 7, wherein the interface  
comprises at least one of a System Interface and a Maintenance Interface.  
25

9. The digital communication system of Claim 7, wherein the interface  
comprises a multiplexer for creating a multiplexed stream from the at least one  
of the cell and the packet information.

**Loughran 9-3-2**

10. The digital communication system of Claim 9, wherein the multiplexed stream is received through at least one of a System Interface and a Maintenance Interface.

5

11. The digital communication system of Claim 1, wherein the node further comprises:

10 a general-purpose processor for at least one of controlling the at least two network processing devices and performing maintenance on the node.

12. The digital communication system of Claim 11, wherein the shared bus  
15 structure couples the general-purpose processor with each of the network processing devices.

13. The digital communication system of Claim 12, wherein the shared bus  
20 structure comprises a Peripheral Component Interconnect bus.

14. The digital communication system of Claim 11, wherein the general-  
purpose processor supports peer-to-peer routing with at least one of the  
25 network processing devices.

15. The digital communication system of Claim 1, comprising:

### Loughran 9-3-2

at least one external system input/output interface.

16. The digital communication system of Claim 15, wherein the external  
5 system input/output interface supports at least one transport mechanism type,  
the at least one transport mechanism type comprising at least one of  
Asynchronous Transfer Mode, Internet Protocol, and Frame Relay.
- 10 17. A communication node for processing at least one of cell and packet  
information comprising:
- at least one of a plurality of network processing devices for receiving at  
least one of the cell and the packet information, for determining a  
15 destination within the node for the cell and the packet information, and  
for at least one of routing and forwarding the cell and the packet  
information to the destination, the destination determined in response to  
at least one of stored routing rules and characteristics of the cell and the  
packet information;
- 20 a shared bus structure for coupling each of the network processing  
devices with each other; and
- at least one of a System Interface and a Maintenance Interface for  
25 coupling for providing the cell and the packet information to the at least  
one network processing device.

**Loughran 9-3-2**

18. The communication node of Claim 17, wherein the at least one of a plurality of network processing devices employ dynamically updated routing rules.

5

19. The communication node of Claim 17, wherein the at least one of a plurality of network processing devices performs the at least one of routing and forwarding on both the cell and the packet information simultaneously.

10

20. The communication node of Claim 17, wherein the at least one of a plurality of network processing devices directly delivers the at least one of routing and forwarding the cell and the packet information into a memory of the destination.

15

21. The communication node of Claim 17, wherein the at least one network processing device supports peer-to-peer routing.

20

22. The communication node of Claim 17, comprising:

25 a multiplexer for creating a multiplexed stream from the at least one of the cell and the packet information, the multiplexed stream is received through at least one of a System Interface and a Maintenance Interface.

**Loughran 9-3-2**

23. The communication node of Claim 17, comprising:

5 a general-purpose processor for controlling the at least two network processing devices, wherein the shared bus structure couples the general-purpose processor with each of the network processing devices.

24. The communication node of Claim 17, wherein the shared bus structure couples the general-purpose processor with each of the network processing  
10 devices.

25. The communication node of Claim 17, wherein the shared bus structure comprises a Peripheral Component Interconnect bus.  
15

26. The communication node of Claim 17, comprising:  
20 at least one external system input/output interface supportive of at least one transport mechanism type, the at least one transport mechanism type comprising Asynchronous Transfer Mode, Internet Protocol, and Frame Relay.